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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,386	01/14/2004	Jean-Luc Cabioch	033818-032	1882
21839	7590	07/19/2007	EXAMINER	
BUCHANAN, INGERSOLL & ROONEY PC			TESKIN, FRED M	
POST OFFICE BOX 1404			ART UNIT	
ALEXANDRIA, VA 22313-1404			PAPER NUMBER	
			1713	
			MAIL DATE	
			DELIVERY MODE	
			07/19/2007	
			PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/756,386

Applicant(s)

CABIOCH ET AL.

Examiner

Fred M. Teskin

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on April 20, 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 and 29-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6, 12, 15, 19-22, 24, 25, 29, 31-35, 37 and 39-43 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-11, 13, 14, 16-18, 23, 26, 30, 36 and 38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 1713

Amendments presented in the reply of April 20, 2007 are acknowledged. Claims 1-26 and 29-43 are currently pending and under examination herein.

Applicant's arguments, see pages 13-14, filed April 20, 2007, with respect to claims 29, 34 and 37 have been fully considered and are persuasive. The rejection of said claims has been withdrawn.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-5, 7-11, 13, 14, 16-18, 23 and 26 stand rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hellermann *et al.*

Hellermann *et al* disclose a process for the preparation of polyisoprenes having high contents of vinyl microstructure (1,2- and 3,4-structural units) using alkyllithium compounds as catalyst and ethylene glycol dialkyl ethers of defined formula as cocatalyst (see col. 3, lines 15+). The described catalyst and cocatalyst correspond respectively to applicants' "initiator" and "polar agent" as claimed, and in various examples are used at a molar ratio of 10 (i.e., cocatalyst/catalyst; see Examples 2, 4, 6, 8).

Regarding claims 1-5, 7-11, 13, 14, 16-18 and 23, the recited parameters relating to mass content of cyclic vinyl units and number-average molecular weight are not

Art Unit: 1713

mentioned in Hellermann *et al.* These properties, however, are the result of polymerizing at least one conjugated diene monomer according to the claimed process. The patentees exemplify polyisoprenes prepared by substantially the same process, i.e., by anionically polymerizing isoprene using a dialkyl ether cocatalyst and alkyl lithium catalyst at a molar ratio (10) within claims 13, 14, 16 and 17, the reaction being carried out batchwise (as in working Examples 2, 4, 6 and 8) or continuously (as per col. 4, ll. 57-60). In addition, the use of higher cocatalyst/catalyst ratios within claim 18 is specifically contemplated (e.g., 15:1 or 30:1 as per col. 4, ll. 31-33).

Where, as here, the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness is established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977). When there is sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not. *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Further as to claims 7-11 as well as claim 26: the patentees' experimental procedure includes the step of reacting the rubber with a coupling agent (divinyl benzene) to provide a stellate structure that is said to be distinguishable from the uncoupled rubber by a substantially higher molecular weight (see col. 6, ll. 20-23 and 29-32). As claim 26 calls for the same reaction (i.e., reacting polymerization product with a coupling or starring agent), there is a plausible basis for inferring that the patentees' coupled rubber inherently meets the "branched" limitation of these claims.

Art Unit: 1713

Claims 30, 36 and 38 stand rejected under 35 U.S.C. 103(a) as being unpatentable over US 4316820 to Wieder *et al.*

Claim 30, drawn to a catalytic system, has been amended to specify that the (polar agent:initiator) molar ratio is "greater than 10". Claim 36 depends from claim 30 and more specifically defines the alkali metal salt of the claimed catalytic system as a sodium salt of an aliphatic alcohol having 3 to 12 carbon atoms. Claim 38 depends from claim 36 and is specific to sodium tert-amylate.

Wieder *et al* disclose a catalyst comprising (a) an organometallic compound of formula RMe where R represents a saturated aliphatic or aromatic hydrocarbon radical of 2 to 8 carbon atoms and Me is an alkali metal; (b) a compound of formula R'OMe' where R' represents a saturated aliphatic or aromatic hydrocarbon radical of 2 to 8 carbon atoms and Me' is an alkali metal; and (c) a tertiary aliphatic triamine (col. 2, ll.5-16). In particular, Wieder *et al* exemplify (Example 1) a catalyst that meets the compositional limitations of claim 30 but for a polar agent:initiator molar ratio of less than 10, e.g., 1:1 as in Example I(g).

However, Wieder *et al* teach a molar ratio of components (a) and (c) "is preferably from 0.1:1 to 10:1, more preferably from 0.5:1 to 5:1" (col. 2, ll. 49-52). The preferred range equates to a molar ratio of (a) to (c) of 1:10 to 1:0.1.

Notwithstanding applicants' argument to the contrary, the fact that Wieder *et al* use the term "preferably" in describing a range of 0.1:1 to 10:1 would have implied to those of ordinary skill the suitability of molar ratios of (a) to (c) slightly below 0.1:1, or above precisely 1:10, and within the range of present claim 30. In other words, while

Art Unit: 1713

the claimed and prior art ranges do not overlap, they are close enough that one skilled in the art would have expected them to have similar properties, see *Titanium Metals Corp. of America v. Banner*, 227 USPQ 773 (Fed. Cir. 1985). Given an expectation of similar utilitarian properties, it would have been obvious to an ordinarily skilled practitioner to modify the Wieder *et al* catalyst by adjusting the relative proportions of tertiary aliphatic triamine and organolithium compound therein to provide a molar ratio of polar agent/initiator greater than 10, and thereby produce a catalytic system within claim 30.

As to claims 36 and 38, Wieder *et al* list "pentyl" (i.e., amyl) as a preferred choice for R and R' of described catalyst components (a) and (b), see column 2, lines 38-41. The listing of "pentyl" in this context would fairly imply the suitability of that alkyl group in any of its isomeric forms, including tert.-amyl. Further, given the close structural relationship between tert-amyl and t-butyl (also mentioned as a preferred choice for R and R'), there would have been a reasonable expectation of alkali metal alcoholates based on the former possessing similar properties to the corresponding t-butoxide salts, including similar activity in the patentees' catalyst. Such expectation of similar performance would have led one of ordinary skill to utilize an alkali metal tert-amylate such as sodium tert-amylate as component (b) of the patentees' catalyst together with a tertiary aliphatic triamine and an organolithium compound in proportions equating to a molar ratio greater than 10, as presently claimed.

Art Unit: 1713

Applicants' arguments filed April 20, 2007, have been fully considered but are not persuasive.

Regarding Weider *et al*, applicants argue that the reference does not disclose or suggest a catalyst wherein the molar ratio of polar agent/initiator is greater than 10, as recited in the present claims. Examiner disagrees for the reasons set out in the explanation of the continued rejection over Wieder *et al*, *supra*.

Regarding Hellermann *et al*, applicants' arguments appear to be essentially two-fold: (I) Hellermann *et al* does not disclose or suggest an elastomer containing cyclic vinyl units, let alone an elastomer containing cyclic vinyl units in a mass content of greater than or equal to 15 %, and (II) the polyisoprenes described in Hellermann *et al* do not comprise cyclic vinyl units because the CH<sub>3</sub> group of the isoprene sterically prevents the formation of cyclic vinyl units (Reply, p. 15).

Issue is taken with this position because, as to point (I), the lack of explicit disclosure in Hellermann *et al* of an elastomer with cyclic vinyl units is not by itself dispositive of patentability. Indeed, given the identity of polymerization conditions and catalyst system between the reference and the applicants' production process, as noted above, examiner maintains there is a plausible basis exists for inferring that the undisclosed structural features here claimed inhere in the polyisoprene products of Hellermann *et al*.

As to point (II), applicants' assertion that the pendant methyl group of isoprene sterically prevents formation of cyclic vinyl units in Hellermann *et al* stands unsupported by objective evidence in the record, and therefore amounts to mere argument. Indeed,

Art Unit: 1713

applicants have submitted no objective evidence nor specifically identified any evidence already of record tending to support the assertion. Argument of counsel cannot take the place of evidence in the record, *In re Pearson*, 181 USPQ 641, 646 (CCPA 1974).

Further to point (II), the assertion appears at odds with applicants' own specification, which lists 2-methyl-1,3-butadiene (a/k/a isoprene) as a suitable conjugated diene (see page 9, first full paragraph). This is understood to mean that isoprene qualifies as a "conjugated diene" within applicants' claims (e.g., independent claims 1 and 14). Thus, the fact that Hellermann *et al* subject isoprene to anionic polymerization using a dialkyl ether cocatalyst and alkyl lithium catalyst at a molar ratio of 10 is fully consistent with applicants' production process and, moreover, justifies the presumption that the resultant polyisoprene is *prima facie* the same as applicants' linear diene elastomer as claimed.

Claims 6, 12, 15, 19-22, 24, 25, 29, 31-35, 37 and 39-43, as presently understood, are deemed allowable on the present record.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the



Art Unit: 1713


shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMTeskin/07-07-07

  
**FRED TESKIN**  
**PRIMARY EXAMINER**  
1713